The Sampler

November 30, 2015

The Sampler is a monthly e-newsletter produced by the Volunteer Lake Assessment Program.

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Web Highlights

This month's featured lake website is Monomonac Lake, Rindge, NH

NH Marine Patrol Reminds Lake Bubbler Users to Obtain Permits

Altered pH and Reduced Calcium Levels Drive Extirpation of Native Crayfish

Calcium Losses Cause Jellification of Lakes

Lakes Resist the Introduction of New Fish

Earth's Hidden Groundwater Mapped

EPA Takes Next Steps to Protect Drinking Water Against Harmful Algal Blooms

Remote Lakes Affected by Warming Climate

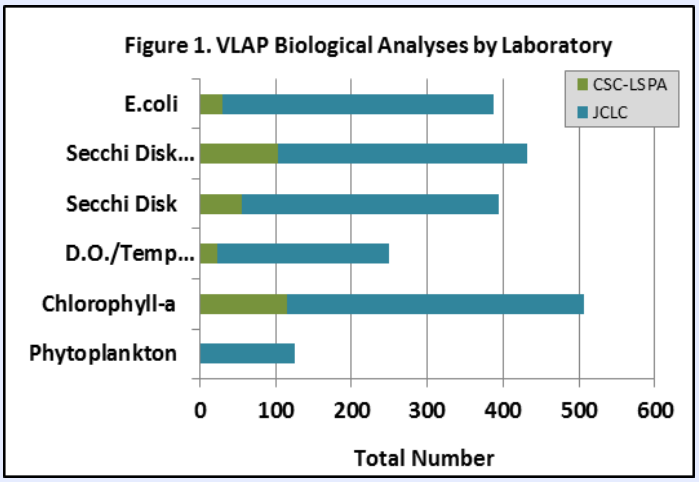
Upcoming Events

Data, Maps, Action!
What's New in the 2015 Wildlife Action Plan
Several Regional Workshops

2015 VLAP Stats

The Volunteer Lake Assessment Program (VLAP) experienced another busy year for volunteers and staff in the Jody Connor Limnology Center (JCLC). Approximately 500 volunteers monitored 166 lakes throughout New Hampshire. A total of 422 individual sampling events were conducted at VLAP lakes. Volunteers conducted a total of 303 individual sampling events, and biologists assisted volunteers for an additional 119 sampling events. Approximately 170 deep spots and 500 river/stream stations were sampled. Continuing with the biennial biologist visit schedule, lake names M-Z received a biologist visit in 2015 and lake names A-L will receive a biologist visit in 2016.

Figures 1 and 2 provide a summary of VLAP sample parameters analyzed by the JCLC and Colby Sawyer College-Lake Sunapee Protective Association (CSC-LSPA) satellite laboratory for the 2015 sampling year. Approximately 13,710 sample results were generated by VLAP in 2015 and this number remained consistent with 2014. Volunteers at 54 lakes also participated in the Regional Cyanobacteria Pilot Project collecting monthly samples for the analysis of phycocyanin, a pigment produced by cyanobacteria.



Available

Mobile Mapping Made Easy
UNH Geospatial Technologies Training Center
Friday, December 11, 2015
1:00 - 4:00 p.m.
UNH Manchester

Thursday, January 7, 2015
1:00 - 4:00 p.m.
UNH Durham

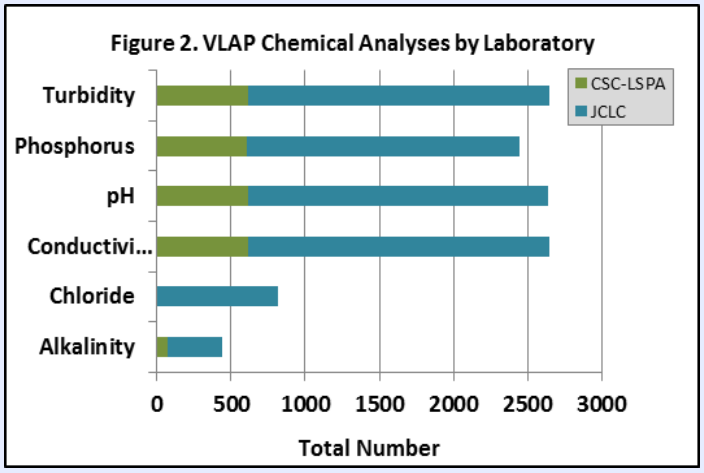
Green Snow Pro Training
Friday, December 11, 2015
8:00 a.m. - 2:00 p.m.
Common Man Restaurant
Windham, NH

Grants

Healthy Watersheds Consortium Grant
U.S. Endowment for Forestry and Communities
Request for Proposals anticipated late 2015

Limno Lingo

Oxygen: Oxygen is dissolved in lake water from the atmosphere and is also produced by plants as a result of photosynthesis. Oxygen is essential for the growth and production of aquatic organisms and is therefore consumed by these organisms as well as by chemical reactions in a system. In a thermally stratified lake, dissolved oxygen concentrations typically change as you move vertically through the water column with more oxygen available near the water's surface and less near the lake bottom. Changes in dissolved oxygen concentrations can affect nutrient availability, such as phosphorus, and result in the growth of aquatic organisms that can quickly utilize available nutrients, such as algae or cyanobacteria. The measurement of dissolved



Annual data collection is essential in establishing long-term water quality trends. These trends help determine whether water quality is getting better or worse and aid in watershed management decisions to protect and restore waters. Trend analyses were performed on VLAP lakes with ten or more consecutive years of data collection. In 2015, trend analyses were performed on approximately 140 lake deep spots for the following parameters: chlorophyll-a, transparency, total phosphorus, pH, and conductivity to determine if water quality improving, stable or getting worse over time.

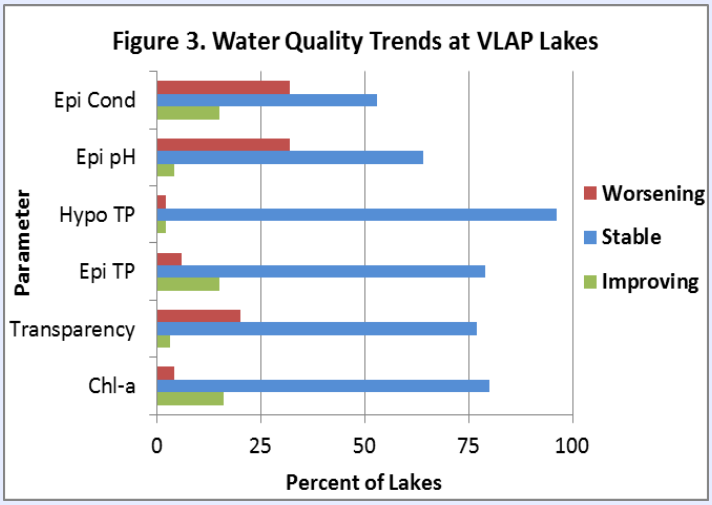


Figure 3 indicates the percent of lake deep spots with improving, stable or worsening trends. All parameters combined, approximately 75 percent of lake deep spots indicate stable conditions, meaning water quality has not changed significantly over time while 10 percent indicate improving conditions, and 15 percent indicate worsening conditions. However when looking at specific parameters, epilimnetic (upper water layer) conductivity and pH has worsened at approximately 30 percent of lake deep spots, and 20 percent have worsening transparency or water clarity. The use of road salt as a winter de-icing agent for roads, parking lots and driveways has likely contributed to the increased epilimnetic conductivity levels in many of our lakes. Regional differences in air patterns and geology, may account for some of the decreasing pH values as the majority of lakes lie within the Dartmouth Lake Sunapee and Lakes Regions, however with the

oxygen in an aquatic system helps to understand the distribution, behavior and growth of aquatic organisms as well as chemical reactions and nutrient availability.

significant reduction in air pollutants known to affect lake acidity, it is unknown what specifically is causing a shift in these lakes. The worsening lake transparency trends are cause for concern as lake clarity is linked to recreation, tourism and property tax revenues. The increased frequency and intensity of storm events may be affecting lake transparency by transporting sediments as well as flushing highly colored water from wetland systems, both of which can decrease transparency.

Let's Go Fishing Program Seeks Volunteers

NH Fish and Game Departments seeks experienced anglers interested in passing on their knowledge to the next generation. The Let's Go Fishing Program utilizes volunteers skilled in basic techniques who are responsible outdoors men or women and who are committed to following the practices of the NH Fish and Game Department. Trained instructors then teach classes in specific disciplines. Volunteer responsibilities are outlined in the job description and potential volunteers should fill out the application form and mail it to the Program Coordinator. Check the training schedule for upcoming classes in the fall and winter.

New: Rain Garden Installation Video

The Soak Up the Rain NH program recently released an instructional video for those interested in installing a residential rain garden on their property. Rain gardens help capture stormwater and allow it to infiltrate into the ground instead of flowing into surface waters or storm drains while also helping to spruce up a yard with native plants and flowers.

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